

What is claimed is:

1. A computer-implemented method for designing an electrical substation, comprising:

identifying functional requirements for said electrical substation;

5 selecting components for said electrical substation from a store of said components as a function of said functional requirements; and

generating at least one substation design, said substation design meeting said identified functional requirements for said electrical substation.

10 2. The computer-implemented method of claim 1, further comprising: receiving data concerning weighted preferences regarding aspects of said substation; and

ranking said substation design as a function of said preferences.

15 3. The computer-implemented method of claim 1, further comprising outputting at least one of said substation designs.

4. The computer-implemented method of claim 1, wherein an electrical substation comprises one of a power substation and a switching substation.

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5. The computer-implemented method of claim 1, wherein identifying functional requirements for said electrical substation further comprises:

presenting a series of questions; and

accepting responses to said questions;

wherein subsequent questions are presented as a function of responses to previous questions.

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6. The computer-implemented method of claim 1, wherein said generating at least one substation design comprises using a knowledge-based system that includes a user modifiable artificial intelligence based representation of a decision tree defined by hierarchical nodes.

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7. The computer-implemented method of claim 1, wherein selecting components for said electrical substation design further comprises creating a database including a stored database representation of attributes of substation components, said stored database representation being consistent with the multi-level nodal hierarchy of the knowledge-based system.

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8. The computer-implemented method of claim 7, wherein said database can be dynamically updated with additional designs and substation components and component attributes.

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9. A computer-implemented system for designing an electrical substation comprising:

an input device for collecting functional requirements for an electrical substation;
a processing unit containing computer-executable instructions for accepting said functional requirements for an electrical substation and for generating at least one design for an electrical substation as a function of said functional requirements.

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10. The computer-implemented system of claim 9, further comprising an output device, for outputting said at least one design for an electrical substation as a function of said functional requirements.

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manner, wherein subsequent questions are presented as a function of responses to previous questions.

14. The computer-implemented system of claim 13, wherein said system of
5 presenting questions is implemented by means of a decision tree.

15. The computer-implemented system of claim 9, wherein said processing
unit for generating at least one substation design as a function of said functional
requirements is an expert system.

16. The computer-implemented system of claim 9, wherein said processing
unit for generating at least one substation design further comprises executable
instructions for ranking said at least one substation design as a function of weighted
preferences.

17. The computer-implemented system of claim 10, wherein said output
device further comprises a device for outputting a list of system components making up a
substation design and their attributes.

18. The computer-implemented system of claim 10, wherein said output
device further comprises a device for outputting a blueprint of a substation design.

19. A computer-readable medium containing computer-executable instructions for designing an electrical substation comprising:

identifying functional requirements for said electrical substation;

selecting components for said electrical substation from a store of said

5 components as a function of said functional requirements; and

generating at least one substation design, said substation design meeting said identified functional requirements for said electrical substation.

20. The computer-readable medium of claim 19, containing further computer-executable instructions for designing an electrical substation for:

identifying preferences; and

ranking said at least one substation design as a function of said preferences.

21. The computer-readable medium of claim 19, wherein said computer-executable instructions for generating at least one design further comprise a knowledge-based system including a user-modifiable artificial intelligence.

22. The computer-readable medium of claim 19, wherein said computer-executable instructions further comprise instructions for evaluating said design solution, using an input of preferences.

23. The computer-readable medium of claim 19, wherein the computer-executable instructions define a multi-level, nodal decision tree defined by hierarchical nodes.

5 24. The computer-readable medium of claim 19, wherein said instructions include a database of substation components consistent with said knowledge based system.

10 25. The computer-readable medium of claim 19, containing further computer-executable instructions for developing a database of substation components.